ATTACHMENT 2-6
IG PREPAREDNESS AND PREVENTION

1.0 INTRODUCTION

1.0.1 This attachment discusses preparedness and prevention for Igloo G required by R315-8-3. This attachment consists of the following sections:

- Design and Operation of the Facility
- Equipment Requirements
- Testing and Maintenance of Equipment
- Aisle Space Requirements
- Air Monitoring and the Prevention of Releases to the Atmosphere
- Arrangements with local Authorities

2.0 DESIGN AND OPERATION OF THE FACILITY

2.0.1 The design and operational considerations described in the following sections minimize the possibility of fire, explosion, or any unplanned release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment.

- Unloading Operations
- Run-Off and Run-On Control
- Water Supply
- Equipment and Power Failure
- Emergency Response Equipment
- Air Monitoring and the Prevention of Releases to the Atmosphere
- Precautions for Handling Ignitable, Reactive, or Incompatible Waste

2.1 Unloading Operations: R315-3-2.5(b)(8)(i)

2.1.1 Prior to unloading containers of hazardous wastes in Igloo G, the following procedures must be performed.

- The Explosive Ordnance Disposal (EOD) entity is responsible for range recovery of chemical munitions including initial containerization in overpacks and identification of waste type.

- Documentation must be prepared for each container. Documentation includes an identification of chemical warfare materiel (CWM) type (if known), munitions data, explosive components, and containerization, as it becomes available.

- The Igloo G manager must be informed of the arrival and movement of all chemical munitions designated for storage in Igloo G.

- The facility manager or representative ensures that the identification information on each container matches the accompanying shipping document information, and that the waste is properly containerized prior to accepting the waste for storage in Igloo G.

2.1.2 Once containers are accepted for storage, they will be unloaded from the transport vehicle and manually placed into storage in Igloo G. Containers equipped with sealed overpack-type secondary containment will be placed on containment pallets on the concrete floor of the building. The walls of the igloo are stenciled with lines that establish an alphabetical grid. This grid is used to identify the location of each container on the inventory log maintained by the Igloo G manager. A magazine data card is prepared for each container to identify its contents and the date it was placed into storage. Additionally, a railroad-car-type seal is placed on the container with a registered seal number. This ensures that unauthorized tampering or opening of the container cannot occur without breaking the registered seal. Materiel will not be accepted into the storage building until properly marked, labeled, containerized, and documented.

2.2 Run-Off and Run-On Control: R315-3-2.5(b)(8)(ii)

2.2.1 Because Igloo G is a totally enclosed container storage facility, it is not impacted by precipitation. The potential for run-off from Igloo G is further minimized by the following procedures, structures and equipment.

- All munitions, regardless of condition, are overpacked to prevent liquid and vapor leaks
- Air monitoring of Igloo G is performed to assess whether leakage of agent from the overpack containers may have occurred
- The secondary containment devices contain any leaks of liquid waste until overpacking or clean up and decontamination procedures are completed.

2.2.2 Precipitation is prevented from potentially entering Igloo G because the finished floor of the igloo is higher than the surrounding ground level. In addition, the tightly sealed door prevents precipitation from entering the igloo. Further control is provided by the sealed propellant charge cans or pigs (i.e., munition overpacks), in which the hazardous wastes are placed. The overpacks provide secondary containment and additional protection from both run-on and run-off.

2.3 Water Supply: R315-3-2.5(b)(8)(iii)

2.3.1 Dugway Proving Ground (DPG) obtains its water supplies from groundwater in the Skull Valley drainage basin aquifer and the Dugway Basin aquifer. Many redundant controls are in place to assure that there will be no release to the environment of hazardous waste or hazardous constituents from Igloo G. However, due to the depth of the aquifers, which provide potable water, it is unlikely that any release of hazardous waste from Igloo G would result in damage to the installation's potable water supply.

2.4 Equipment and Power Failure: R315-3-2.5(b)(iv)

2.4.1 All lighting within Igloo G is from natural and portable light sources, therefore, there is no need for supplied power in Igloo G. Electricity is supplied to the outside of the igloo to power the air monitoring equipment. In the event of equipment failure, operations will cease and the igloo will be closed until the faulty equipment is either repaired or replaced.

2.5 Emergency Response Equipment: R315-3-2.5(b)(8)(v)

2.5.1 Emergency response equipment is provided for all facility personnel involved in hazardous waste

management to protect them from exposure to hazardous waste (See Attachment 2-7). As part of the training program described in Attachment 2-4 of this permit, all emergency response personnel are trained in the proper use, inspection, and maintenance of the equipment listed in Table 1. Personnel who must enter Igloo G are required to procure PPE and are listed in Table 1.

2.5.2 No fire control, spill control, or decontamination equipment is stored in Igloo G. The equipment is located at the Ditto and CARR facilities. Igloo G personnel shall maintain the same equipment listed in Table 1 for its facility. This equipment is brought to Igloo G each time personnel enter the igloo (i.e., for inspections, delivering containers, or removing containers). Whenever Igloo G is opened for any purpose, first entry procedures are followed, and first entry personnel remain in the immediate vicinity of the igloo to provide emergency response.

2.5.3 Specific contingency emergency response equipment shall be listed in this section as appropriate decontamination solution and equipment and spill control equipment will be listed in Table 1 of the Permit.

2.5.4 Air monitoring is performed prior to and during entry of Igloo G as part of first entry procedures of Dugway and this Permit. An air monitoring technician monitors the air as required by Attachment 2-11 of the permit prior to entry using Miniature Automatic Continuous Air Monitoring System (MINICAMS®) as specified by Attachment 2-1 of the Permit. The MINICAMS® are located outside of the igloo. The MINICAMS® are connected to the igloo interior via tubing exiting Igloo G from the front air vents. Responses to air monitoring detections are described in Attachment 2-11, Section 6.

2.5.5 Igloo G is equipped with a simple fire suppression system. The front two air vents on either side of the door on Igloo G and the rear roof vent are equipped with heat fusible links that hold the vents open. The links are designed to melt when the temperature reaches 140°F and shut off airflow into and out of Igloo G. The links can also be broken manually, if there is a need to seal off the igloo.

Table 1. Equipment for Igloo G

Description		Location
Emergency operation equipment (weekly) • Chemical agent detection kits • PPE* • First aid kit • Flashlights • Overpacks	▪ Labels ▪ Decontamination solution ▪ Fire extinguisher ▪ Buckets	Carr Facility and/or TAP Laundry
Management Equipment (weekly) • Drop Pans • Pallets	▪ Internal/External communication systems ▪ Alarms	Carr Facility
Air monitoring equipment (monthly) • MINICAMS® with agent alarms • DAAMS tubes • Bubblers • Air pumps • Internal/External communication systems	▪ Dry compressed air ▪ Timer/watch ▪ Air sampling lines ▪ Spare tubing	Igloo G
First entry equipment (quarterly) • Spare air tank • Stretcher • Container seals and tools • Forklift	▪ Radio equipped first entry vehicle ▪ Vehicle to serve as ambulance ▪ PPE*	Igloo G
Decontamination truck equipment (quarterly) • Decontamination solutions • Water • Foot pans	▪ Buckets ▪ Foot pan solution container ▪ Pump	Igloo G

Notes:
* = Level A supplied by TAP Laundry for first entry personnel, Level D (slung masks, steel toed boots, coveralls) for other personnel. Non-chemical workers (non-chemical workers can wear street clothes with a slung mask in lieu of Level D).
TAP = Toxicological Agent Protective

2.6 Air Monitoring and the Prevention of Releases to the Atmosphere: R315-3-2.5(b)(8)(vi)

2.6.1 The following procedures are used at Igloo G for the purpose of preventing releases of chemical warfare materiel (CWM) to the atmosphere.

- Range recovered munitions (RRMs) are placed in airtight overpack containers prior to storage in Igloo G.

- Air inside Igloo G is monitored in accordance with the procedures specified in the Igloo G Air Monitoring Plan (See Attachment 2-11 of this Permit).

- Analysis is performed according to the Waste Analysis Plan of this permit (Attachment 2-1).

- If air monitoring in Igloo G indicates the airborne presence of CWM, a portable filtration unit is required as described in SOP DP-0000-M-170, MGA 1 Filter Operation at Toxic Chemical Agent Storage 3643.

- Entry into Igloo G is conducted in accordance with the first entry procedures of Dugway and this Permit.

2.7 Precautions for Handling Ignitable, Reactive, or Incompatible Waste: R315-3-2.5(b)(9), 8-2.8(a), 8-9.7, 8-9.8.

2.7.1 The CWM stored in Igloo G is not ignitable. Although the explosively configured RRMs are classified as D003 reactive wastes, reactive components are protected against initiation of violent reactions by EOD procedures performed on each RRM at the time of recovery to render them safe for storage. In addition, storage in Igloo G is in compliance with military storage standards developed to reduce the possibility of the energetic components reacting. Protection from fires inside the igloo is provided by fusible links on the front two-air vents and rear roof vent. The links are designed to melt when the internal temperature of Igloo G reaches 140 degrees Fahrenheit (°F) and thereby shut off airflow into and out of the igloo in the event of a fire. All of the storage igloos in the Carr Facility area are designated as no smoking areas.

2.7.2 All munitions are stored within portable secondary containment devices that provide an extra measure of protection against leakage. Additionally the munitions are partitioned from other materiel stored in Igloo G by a wall constructed as a 4-foot high, 1-foot wide plywood box filled with sand. This wall is intended to serve as a barricade, in the unlikely event that one of the RRMs should explode. Igloo G is structurally designed to contain fires involving explosives and munitions.

3.0 <u>EQUIPMENT REQUIREMENTS</u>: R315-3-2.5(b)(4), R315-8-3.3

3.0.1 This section presents the equipment and procedures used to prevent or mitigate hazards associated with storage in Igloo G. A complete list of equipment that is required is listed in Table 1. This equipment will be inspected at the frequency identified in Attachment 2-3 of this permit. This section consists of the following equipment requirements for Preparedness and Prevention:

- Internal Communications
- External Communications
- Water for Fire Control

3.1 Internal Communications: R315-8-3.3(a)

3.1.1 Communication devices are not available inside Igloo G. Personnel entering the igloo must work in pairs and in sight of each other. Personnel entering the igloo are assisted by at least one other person outside the igloo who has access to all other DPG communications via a two-way radio. To prevent explosions resulting from sources of electrical energy (e.g., two-way radios), communication between inside and outside personnel is by hand signals and by visual and voice contact.

3.1.2 A telephone is located outside Igloo G and can be used for communications within DPG. Additionally, a radio-equipped vehicle is always available at the scene during entry of Igloo G. Security personnel for internal communication also use two-way radios, with transmission and receiving ranges sufficient to contact security and emergency personnel.

3.2 External Communications: R315-8-3.3(b), 8-3.5

3.2.1 Facility personnel may utilize both the telephone system and the radio network described in Section 3.1 to notify local emergency response teams. All facility personnel have immediate access to either a telephone or a two-way radio. Emergency response coordination is described in Attachment 2-7, of this permit.

3.3 Water for Fire Control: R315-8-3.3(c)(d)

3.3.1 The first entry equipment includes portable fire extinguishers. These extinguishers can be quickly accessed to put out small fires that may occur in and around Igloo G. Fires in igloos resulting from or contacting CWM or explosives are generally allowed to burn because of the dangers to personnel from fighting such fires. In the event of a fire within Igloo G, all personnel are required to evacuate the igloo and close the doors. The fusible links will automatically close the wall and roof vents when the temperature exceeds 140°F. The igloo is structurally designed to control, and possibly contain, fires involving explosives and munitions. In addition, there is an earthen cover overlapping the walls and roof that is designed to enhance containment of explosive debris and projectiles.

3.3.2 In the event of a fire outside of Igloo G (i.e. wildfire), which may threaten personnel inside the igloo the DPG fire department will be called. The DPG fire department has two tankers used to fight fires in locations away from continuous water supplies. Each tanker has a capacity of 1,200 gallons and can be refilled from water storage tanks located in the developed portions of DPG.

4.0 TESTING AND MAINTENANCE OF EQUIPMENT: R315-8-3.4

4.1 Igloo G does not use equipment that requires regular maintenance. There are no alarm systems, spill control equipment, decontamination equipment, or communication devices located in Igloo G. All equipment used during igloo entry procedures are tested prior to igloo entry. Equipment will be repaired or replaced before entry into the igloo is initiated.

5.0 AISLE SPACE REQUIREMENT: R315-8-3.6

5.1 Igloo G is adequately separated from other nearby storage bunkers to allow movement of personnel and equipment between buildings. In addition, sufficient aisle space is maintained within Igloo G to allow the unobstructed movement of personnel, fire protection equipment, or spill control equipment in the event of an emergency. Containers are stored by group according to the agent they contain. Those containers holding RRMs with unidentified agent contents are sorted into three groups (i.e., projectiles with fuzes, projectiles without fuzes, and bomb-type munitions). Four-foot high sand-filled dividers separate the RRMs from other chemical agent stored in Igloo G. A central aisle approximately 8-feet wide is maintained down the entire length of Igloo G. Adequate walking space is maintained around each storage group to allow for inspections.

6.0 ARRANGEMENTS WITH LOCAL AUTHOURTIES R315-8-3.7

6.1 The Permittee shall attempt to make arrangements (Coordination Agreements) with State and local authorities as required by R315-8-3.7 of the Rules. The Permittee shall document all attempts to make such agreements, any refusals, and all final agreements in the facility operating records and provide notification to the Executive Secretary that demonstrates delivery of a copy of the facility contingency plan(s) to local authorities.